

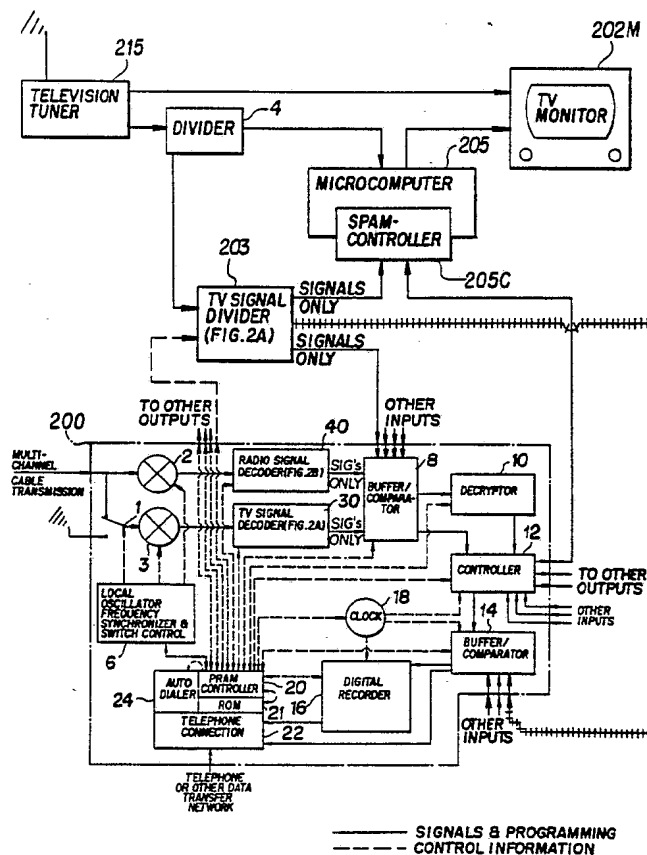
## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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**(54) Title:** SIGNAL PROCESSING APPARATUS AND METHODS

**(57) Abstract**

A unified system of programming communication. The system encompasses prior art communications (such as, for example, television, radio, electronically transmitted print, and computer communications) and new user specific mass media. Within the unified system, computer system means (205) and methods provide capacity for generating relevant user specific information simultaneously at each station (26) of a plurality of subscriber stations (26).



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## AMENDED CLAIMS

[received by the International Bureau on 13 March 1989 (13.03.89);  
original claims 1-38 replaced by amended claims 1-38 (11 pages)]

1. In a signal processor system, carrier  
transmission receiving means; means for demodulating said  
carrier transmission to detect an information transmission  
thereon; detector means for detecting an embedded signal  
5 in the information transmission and removing it from said  
information transmission; first control means responsive  
to said detected signal to activate and/or deactivate  
equipment external to said signal processor system;  
second control means activated by said detected signal to  
10 monitor the performance and/or output of said first  
control means; a recorder means for receiving and  
recording data collected by said monitor means; and  
control means for instructing said recorder to direct  
information recorded thereon to a remote site.

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2. In a signal processor, carrier transmission  
receiving means; means for demodulating said carrier  
transmission to detect an information transmission  
thereon; detector means for detecting an embedded signal  
20 in the information transmission and for removing said  
signal from said information transmission; control means  
responsive to said detected signal to activate and/or  
deactivate equipment external to said signal processor;  
monitor means activated by said detected signal to monitor  
25 the performance and/or output of said external equipment;  
a recorder means for receiving and recording data  
collected by said monitor means; control means for  
instructing said carrier receiving means to receive the  
appropriate carrier transmission within a predetermined  
30 time interval and to direct said received carrier  
transmission to said demodulating means and said detector  
means; and control means for instructing said recorder to  
direct information recorded thereon to a remote site.

3. In a signal processor, carrier transmission receiving means; means for demodulating said carrier transmission to detect an information transmission thereon; detector means for determining the presence or absence of an embedded signal in the information transmission within a predetermined time interval and for detecting said signal and removing it from said information transmission; recorder means for receiving and recording the presence or absence of said detected signal; control means for instructing said carrier receiving means to receive the appropriate carrier transmission within said predetermined time interval and to direct said received carrier transmission to said demodulating means and detector means; control means for instructing said detector means to detect the presence or absence of said embedded signal within said predetermined time interval; and control means for instructing said recorder means to transmit the information recorded thereon to a remote site.

4. In a signal processor, carrier transmission receiving means; means for demodulating said carrier transmission to detect an information transmission thereon; detector means for determining the presence or absence of an embedded signal in said information transmission within a predetermined time interval and for detecting said signal and removing it from said information transmission; buffer means for organizing said detected signals with detected signals from other detector means into a data stream; recorder means for receiving and recording said stream; control means for instructing said

carrier receiving means to receive the appropriate carrier transmission within said predetermined time interval and to direct received said carrier transmission to said demodulating means and said detector means; control means for instructing said recorder to direct information recorded thereon to a remote site; control means responsive to some of said detected signals in said data stream to activate and/or deactivate equipment external to said signal processor; and control means responsive to some other of said detected signals in said data stream to alter the location in succeeding information transmissions examined for embedded signals.

5. In a signal processor, carrier transmission receiving means; means for demodulating said carrier transmission to detect an information transmission thereon; detector means for determining the presence or absence of an embedded signal in the information transmission within a predetermined time interval and for detecting said signal and removing it from said information transmission; buffer means for organizing said detected signals with detected signals from other detector means into a data stream; recorder means for receiving and recording said data stream; control means for instructing said carrier receiving means to receive the appropriate carrier transmission within said predetermined time interval and to direct said received carrier transmission to said demodulating means and said detector means; control means for instructing said detector means to detect the presence or absence of said embedded signal within said predetermined time interval; and control means for instructing said recorder to direct information recorded thereon to a remote site.

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6. The apparatus as claimed in claim 1 wherein the embedded signal is encrypted and including a decrypter means for decrypting said signal.

5           7. The apparatus as claimed in claim 2 wherein the embedded signal is encrypted and including a decrypter means for decrypting said signal.

10           8. The apparatus as claimed in claim 3 wherein the embedded signal is encrypted and including a decrypter means for decrypting said signal.

15           9. The apparatus as claimed in claim 4 wherein the embedded signal is encrypted and including a decrypter means for decrypting said signal.

20           10. A signal processor system comprising a carrier transmission receiving means; means for demodulating said carrier transmission to detect an information transmission thereon; detector means for identifying a signal embedded in said information transmission and removing it therefrom; a first control means for instructing said detector to identify and pass a specified embedded detected signal; a second control means for receiving said  
25           specified embedded detected signal from said first control means and for inputting said embedded signal into computer equipment external to said signal processor system.

30           11. The apparatus as claimed in claim 2 including means for receiving and detecting embedded signals on a plurality of carrier transmissions.

35           12. The apparatus as claimed in claim 3 including means for receiving and detecting embedded signals on a plurality of carrier transmissions.

13. The apparatus as claimed in claim 4 including means for receiving and detecting embedded signals on a plurality of carrier transmissions.

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14. The apparatus in claim 10 wherein the embedded signal is encrypted and including a decrypter means for decrypting said signal.

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15. A method of processing signals including:

(a) the step of receiving a carrier transmission;  
(b) the step of demodulating said carrier transmission to detect an information transmission thereon;

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(c) the step of detecting and identifying embedded signals on said information transmission;

(d) the step of passing said embedded signals to a device or devices to be controlled based on instructions identified within said embedded

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signals;

(e) the step of controlling said devices based on the instructions within said embedded signals; and

(f) the step of recording the receipt of and passing to said devices of said embedded signals.

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16. A method of processing signals as claimed in claim 15 including the step of decrypting encrypted embedded signals.

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17. A method of processing signals as claimed in claim 15 including the step of recording the response of the device or devices to be controlled by the embedded signals for later transmission to a remote site.

18. A method of processing signals as claimed in claim 15 including the step of decrypting an encrypted information transmission.

5           19. A method of processing signals as claimed in claim 15 including the step of removing a portion of said detected embedded signal.

10           20. A method of processing signals as claimed in claim 15 including the step of adding a second signal to the information transmission.

15           21. A method of generating computer output in a computer system that consists of a multiplicity of computers each of which is adapted to generate and transmit user specific output information content and a user specific signal to one or more associated output devices, with at least some of said computers being programmed to process modification control signals so as  
20           to modify the user specific signals transmitted to their associated output devices, each of said computers being programmed to accommodate a special user application, comprising the steps of:

25           transmitting an instruct-to-generate signal to said computers at a time when corresponding user specific output information content does not exist, and

30           causing selected computers to generate their user specific output information content in response to said instruct-to-generate signal, thereby to transmit to each of their associated output devices an output signal comprising the user specific output information content and the user specific signal of its associated computer, the output signals at a multiplicity of said output devices being different, with each output signal specific  
35           to a specific user application.



22. A method according to claim 21 wherein said  
last named output devices are system output devices and  
all information of said last named output signals is  
5 system output.

23. A method according to claim 21 including the  
additional steps of:  
transmitting an instruct-to-select signal to  
10 said computers, containing user application data, and  
causing at least one selected computer to  
receive and record at least one selected application datum  
of its specific user application.

15 24. A method according to claim 22 including the  
additional steps of:  
transmitting an instruct-to-select signal to  
said computers, containing user application data, and  
causing at least one selected computer to  
20 receive and record at least one selected application datum  
of its specific user application.

25 25. A method according to claim 23 wherein said  
last named computer is caused to receive and record said  
last named application datum prior to the transmission of  
said instruct-to-generate signal.

30 26. A method according to claim 23 wherein said  
instruct-to-select signal causes more than one computer to  
receive and record at least one selected application datum  
and selected data differ from computer to computer.

27. A method according to claim 25 wherein said  
instruct-to-select signal causes more than one computer to

receive and record at least one selected application datum and selected data differ from computer to computer.

28. A method of generating computer output at a multiplicity of receiver stations each of which includes a computer adapted to generate and transmit user specific output information content and user specific signals to one or more associated output devices, with at least some of said computers being programmed to process modification control signals so as to modify the user specific signals transmitted to their associated output devices, each of said computers being programmed to accommodate a special user application, comprising the steps of:

transmitting an instruct-to-generate signal to said computers at a time when corresponding user specific output information content does not exist,

detecting the presence of said instruct-to-generate signal at selected receiver stations and coupling said instruct-to-generate signal to the computers associated with said selected stations, and

causing said last named computers to generate their user specific output information content in response to said instruct-to-generate signal, thereby to transmit to each of their associated output devices an output signal comprising the user specific output information content and the user specific signal of its associated computer, the output signals at a multiplicity of said output devices being different, with each output signal specific to a specific user.

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29. A method according to claim 28 wherein said last named computers simultaneously start the generation of their user specific output information content.

30. A method according to claim 28 wherein at least one of said last named computers has capacity to commence or cease transmitting its output signals to its associated output device in response to said instruct-to-generate signal and said signal causes said computer to transmit said output signal.

31. A method according to claims 29 wherein at least one of said last named computers has capacity to commence or cease transmitting its output signals to its associated output device in response to said instruct-to-generate signal and said signal causes said computer to transmit said output signal.

32. A method according to claim 29 wherein said instruct-to-generate signal causes said computers to commence the generation of their user specific output information content then to transmit their output signals.

33. A method according to claim 32 wherein said last named computers commence transmitting their output signals simultaneously.

34. A method according to claim 28 wherein at least one of said last named computers has capacity to cease transmitting its user specific signal in response to the absence of said instruct-to-generate signal and the absence of said signal causes said one computer to cease transmitting their user specific signals.

35. A method according to one of claims 21-34 wherein said instruct-to-generate signal causes at least one of said computers to generate second user specific output information content before commencing to transmit a first user specific signal.

36. A method according to one of claims 21-34 wherein said instruct-to-generate signal causes at least one of said computers to generate a second output signal comprising second user specific output information content and second user specific signal before transmission of a first output signal comprising first user specific output information content and a first user specific signal commences.

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37. A method according to one of claims 21-34 wherein said instruct-to-generate signal causes at least one of said computer to generate data that is transmitted to an output device that displays data to the human senses.

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38. A method of generating computer output at a multiplicity of receiver stations each of which includes a computer adapted to generate and transmit user specific signals to one or more associated output devices, with at least some of said computers being programmed to process modification control signals so as to modify the user specific signals transmitted to their associated output devices, each of said computers being programmed to accommodate a special user application, comprising the steps of:

25

transmitting an instruct-to-process signal to said computers at a time when the corresponding output signals are not being transmitted to their associated output devices,

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detecting the presence of said instruct-to-process signal at selected receiver stations and coupling said instruct-to-process signal to the computers associated with said selected stations,

causing said last named computers simultaneously to process computer information in accordance with their special user applications, thereby to commence generation of their user specific signals,

5           transmitting an instruct-to-output signal to said computers to cause each of said computers to output in accordance with its associated special user application, and

10           causing said last named computers to output their user specific signals to their associated output devices in response to said instruct-to-output signal, thereby to transmit to each of said output devices an output signal comprising the processed user specific output information content and the user specific signal of  
15           its associated computer, the output signals at a multiplicity of said output devices being different, with each output signal specific to a specific user.